

Redundancy (Switch 8212zl)

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Overview

Redundancy provides the ability to keep your switch operating by using dual management modules, one active module and one standby module. In the event of a failure, the currently active management module will switchover to the standby management module, which then becomes the active management module.

The advantages of redundant management are:

- Maintaining switch operation if a hardware failure occurs on the active management module
- Minimizing restart time because of failure on a management module
- Hotswapping a failed management module with no downtime
- Allowing a faster software upgrade process (less downtime) when updating software versions

Note

The fabric modules are also redundant and can be enabled or disabled. See “Enabling and Disabling Fabric Modules” on page 15-12.

Terminology

Redundant management uses the following terminology.

Active Management Module. A management module that booted successfully and is actively managing the switch.

Standby Management Module. A management module that is ready to become the active management module if the active management module fails.

Failed Management Module. A management module that did not pass selftest and is not in standby mode.

Offline Management Module. A management module that is offline because redundancy is disabled.

Primary Image. The software version stored in primary flash on each management module.

Secondary Image. The software version stored in secondary flash on each management module.

Selftest. A test performed at boot to ensure the management module is functioning correctly. If the module fails selftest, it does not go into active or standby mode. If both modules fail selftest, the switch does not boot.

Switchover. When the other management module becomes the active management module.

How the Management Modules Interact

When the switch boots up, the management modules run selftest to decide which is the active module and which is the standby module (see “Notes on How the Active Module is Determined” on page 15-44). The module that becomes active finishes booting and then brings up the interface modules and ports. The standby module boots to a certain point, syncs basic files such as the config and security files, and only finishes booting if the active management module fails or you choose to change which module is the active module.

The two management modules communicate by sending heartbeats back and forth. The active management module continuously synchronizes the configuration and security files with the standby module. If the active management module fails, the standby management module becomes the active module and finishes the boot process by reading the stored config file, resetting the interface modules, and bringing up the ports.

Note

The management module that becomes the “active” module will be the one that is booted going forward.

Using Redundant Management

There are new CLI commands for redundant management as well as modifications to existing commands. (See “Existing CLI Commands Affected by Redundant Management” on page 15-29)

New Redundant Management Commands	Page
redundancy management-module	below
redundancy switchover	15-8
redundancy active-management	15-9
redundancy fabric-module	15-12
show redundancy	15-5;15-26

Displaying Redundancy Status

You can display the status of both the management and fabric redundant modules using this command:

Syntax: show redundancy

Displays the status of the management and fabric modules.

An example of the output for the show redundancy command is seen in Figure 15-1.

Redundancy (Switch 8212zl) Using Redundant Management

```
ProCurve(config)# show redundancy

Settings
-----
  Mgmt Redundancy : enabled

Statistics
-----
  Failovers      : 0
  Last Failover  :

Slot Module Description                Status  SW Version  Boot Image
-----
1   ProCurve J9092A Management Module 8200z1 Active   K.12.XX    Primary
2   ProCurve J9092A Management Module 8200z1 Standby  K.12.XX    Primary

1   ProCurve J9093A F2 Fabric Module 8200z1 Enabled
2   ProCurve J9093A F2 Fabric Module 8200z1 Enabled
```

Figure 15-1. Example of show redundancy Command for Management and Fabric Modules

Enabling or Disabling Redundant Management

You can enable or disable redundant management using this command:

Syntax: [no] redundancy management-module

*Allows enabling or disabling of redundant management. The current active module continues to be the active module on boot unless you use the **redundancy active-management** command to make the other module the active module.*

You are prompted with “All configuration files and software images on the off-line management module will be overwritten with the data from the current active management module. Do you want to continue [y/n]?”

*The **no** version of the command disables redundant management. You are prompted with this message: “The other management module will no longer be used for system redundancy except in the case of a HW failure of the active management module. Do you want to continue [y/n]?”. Selecting “n” disables redundant management.*

The **redundancy management-module** command in Figure 15-2 shows redundant management being enabled. The **show redundancy** command displays “Mgmt Redundancy” as enabled. Management Module 1 is the standby management module and Management Module 2 is the active management module.

```

ProCurve(config)# redundancy management-module
All configuration files and software images on the off-line management
module will be overwritten with the data from the current active
management module. Do you want to continue [y/n]? y
ProCurve(config)#

ProCurve(config)# show redundancy

  Settings
  -----
  Mgmt Redundancy : enabled ← Redundancy enabled

  Statistics
  -----
  Failovers      : 0
  Last Failover  :

Slot Module Description                               Status   SW Version   Boot Image
-----
1   ProCurve J9092A Management Module 8200zl Standby   K.12.XX     Primary
2   ProCurve J9092A Management Module 8200zl Active    K.12.XX     Primary

1   ProCurve J9093A F2 Fabric Module 8200zl Enabled
2   ProCurve J9093A F2 Fabric Module 8200zl Enabled

```

Figure 15-2. Example of Enabling Redundancy

The **no** version of the **redundancy management-module** command is used to disable redundancy on the switch, as seen in Figure 15-3. The **show redundancy** command displays “Mgmt Redundancy” as disabled. The standby management module in slot 1 is now offline. The management module in slot 2 remains the active management module.

Note

ProCurve recommends that you leave redundancy enabled. If the active management module has a hardware failure, the standby module may take over and may have an old configuration since file synchronization has not occurred.

The **redundancy management-module** command allows you to shut down a management module that is not functioning correctly without physically removing the module. However, removing the management module is the recommended method.

Redundancy (Switch 8212zl) Using Redundant Management

```
ProCurve(config)# no redundancy management-module
The other management module will no longer be used for system
redundancy except in the case of a hardware failure of the active management
module. Do you want to continue[y/n]? y

ProCurve(config)# show redundancy

  Settings
  -----
  Mgmt Redundancy : disabled ← Redundancy disabled

  Statistics
  -----
  Failovers      : 1
  Last Failover  : Tue Mar 19 12:42:31 2007

Slot Module Description                               Status  SW Version  Boot Image
-----
1   ProCurve J9092A Management Module 8200z1  Offline  K.12.XX    Primary
2   ProCurve J9092A Management Module 8200z1  Active   K.12.XX    Primary

1   ProCurve J9093A F2 Fabric Module 8200z1  Enabled
2   ProCurve J9093A F2 Fabric Module 8200z1  Enabled
```

Figure 15-3. Example of Disabling Redundancy

Directing the Standby Module to Become Active

To make the standby management module become the active management module, use the **redundancy switchover** command. The switch will switchover after all files have finished synchronizing. This may take a couple of minutes if there have been recent configuration file changes or if you have downloaded a new operating system. The standby module finishes booting and becomes the active module. The formerly active module becomes the standby module if it passes selftest.

Syntax: redundancy switchover

Causes an immediate switchover to the standby module. The warning displays: "This management module will now reboot and will become the standby module! You will need to use the other management module's console interface. Do you want to continue [y/n]?"

If redundancy has been disabled, or there is no standby module or the standby module is not in standby mode, this message displays:

```
The other management module does not exist or is not
in standby mode
```

An example of the **redundancy switchover** command is shown in Figure 15-4.


```
ProCurve(config)# redundancy switchover
This management module will now reboot from primary image and will become
the standby module! You will need to use the other management module's
console interface. Do you want to continue [y/n]? y

ROM information:
  Build directory: /sw/rom/build/bmrom(t2g)
  Build date:      Mar 15 2007
  Build time:      08:24:27
  Build version:   K.12.02
  Build number:    13040
Select profile (primary):

Booting Primary Software Image...
.
.
.

Standby Console#
```

Figure 15-4. An Example of the Redundancy Switchover Command

Setting the Active Management Module for Next Boot

You can select which management module you want to be the active management module at the next “boot system” or switchover event. Enter this command:

Syntax: redundancy active-management <standby | management-module1 | management-module2>

The specified module becomes the active management module at the next system boot. This message displays: “On the next system boot, the <module specified> will become active.”

This command will not take effect if the standby management module has failed selftest.

management-module1: Configures management-module 1 as the active management module for the next system boot.

management-module2: Configures management-module 2 as the active management module for the next system boot.

standby: Configures the current standby module as the active management module for the next system boot if redundancy is enabled. If redundancy is disabled, it will become enabled as a standby module at the next boot or failover event.

If the specified management module is not there or is in failed mode, this message displays:

```
The <specified module> is not present or is in failed state.
```

Figure 15-5 shows an example of setting management module 2 to be the active management module.

```
ProCurve(config)# redundancy active-management management-module2
On the next system boot, the management-module2 will become active.
ProCurve(config)# boot system
(boot occurs...)
ProCurve(config)# show redundancy

Settings
-----
Mgmt Redundancy : enabled

Statistics
-----
Failovers       : 0
Last Failover   :

Slot Module Description                               Status  SW Version  Boot Image
-----
1   ProCurve J9092A Management Module 8200z1 Standby K.12.XX   Primary
2   ProCurve J9092A Management Module 8200z1 Active  K.12.XX   Primary

1   ProCurve J9093A F2 Fabric Module 8200z1 Enabled
2   ProCurve J9093A F2 Fabric Module 8200z1 Enabled
```

Figure 15-5. Setting a Management Module to be Active on the Next Boot

If redundancy has been disabled and you specify the standby module with the **active-management** command, upon rebooting the offline module becomes the standby module. The state of redundancy (enabled or disabled) is based on the value in the configuration file in the offline (now standby) module. The configuration files haven't been synchronized if redundancy has been disabled. An example of making the offline management module become the standby management module when redundancy is disabled is shown in Figure 15-6.

```

ProCurve(config)# show redundancy

Settings
-----
Mgmt Redundancy : Disabled ← Redundancy disabled

Statistics
-----
Failovers      : 0
Last Failover  :

Slot Module Description                               Status  SW Version  Boot Image
-----
1   ProCurve J9092A Management Module 8200z1  Active   K.12.XX     Primary
2   ProCurve J9092A Management Module 8200z1  Offline  K.12.XX     Primary

1   ProCurve J9093A Fabric Module 8200z1    Enabled
2   ProCurve J9093A Fabric Module 8200z1    Enabled

ProCurve Switch 8200z1(config)# redundancy active-management standby
On the next system boot, the standby will become active.
Redundancy and Synchronization have been disabled, so it will
not have current configurations.

ProCurve Switch 8200z1(config)# boot
The other management module is not in standby mode and this command will
not cause a switchover. System will reboot from primary image.
Do you want to continue [y/n]? y

(After system reboots...)

ProCurve Switch 8200z1(config)# show redundancy

Settings
-----
Mgmt Redundancy : Disabled ← Redundancy disabled

Statistics
-----
Failovers      : 0
Last Failover  :

Slot Module Description                               Status  SW Version  Boot Image
-----
1   ProCurve J9092A Management Module 8200z1  Standby  K.12.XX     Primary
2   ProCurve J9092A Management Module 8200z1  Active   K.12.XX     Primary

```

Figure 15-6. Example Showing Results of Switching to Standby Module when Redundancy is Disabled

Enabling and Disabling Fabric Modules

The fabric modules can be enabled or disabled even if they are not present in the switch. You cannot disable both fabric modules at the same time; one must be enabled. Use this command to enable or disable the redundant fabric modules. Disabling one fabric module reduces the overall switching capacity of the 8200zl series switches. On some networks where network utilization is less than 50%, you may not notice any degradation of performance.

Syntax: redundancy fabric-module [1 | 2] [enable | disable]

Allows enabling or disabling of fabric modules. You cannot have both fabric modules disabled at the same time.

Default: Both fabric modules are enabled.

```
ProCurve(config)# redundancy fabric-module 2 disable
ProCurve(config)# show redundancy

  Settings
  -----
  Mgmt Redundancy : enabled

  Statistics
  -----
  Failovers       : 0
  Last Failover   :

Slot Module Description                               Status  SW Version  Boot Image
-----
1   ProCurve J9092A Management Module 8200zl  Active   K.12.XX     Primary
2   ProCurve J9092A Management Module 8200zl  Standby  K.12.XX     Primary

1   ProCurve J9093A F2 Fabric Module 8200zl  Enabled
2   ProCurve J9093A F2 Fabric Module 8200zl  Disabled
```

Figure 15-7. Example of Disabling a Fabric Module

Management Module Switchover

Events that Cause a Switchover

There are a number of events that can cause the active management module to switchover to the standby management module when redundancy is enabled:

- The active management module crashes
- The standby management module does not receive a heartbeat from the active management module
- The **redundancy switchover** command is executed
- The active management module is hotswapped out
- The **MM Reset** button on the active management module is pressed
- The **MM Shutdown** button on the active management module is pressed
- The **boot** or **boot active** command is executed
- The **reload** command is executed
- There is a hardware failure on the active management module

In all of these cases the standby management module takes control and performs the actual switchover. The reason for the switchover is entered in log messages on the newly active management module and to any configured Syslog servers.

When Switchover Will not Occur

There are some events for which a switchover is not triggered:

- When a **boot system** command is executed
- When the **Clear** button on the System Support module is pressed
- When redundancy is disabled, unless there is a hardware failure and the system is rebooted.

Consequences of Switchover

When a switchover occurs, the standby management module completes its boot process and reloads all the interface modules. The following information is not saved:

- Port Counter information (counters are reset)

- Learned routes (from routing protocols)
- MAC addresses
- IGMP, LACP, GVRP, LLDP, CDP, 802.1X, STP, VRRP, PIM learned data
- Web auth and MAC auth connections
- IDM data
- AAA accounting data
- Telnet connection to the switch
- SNMP sample rates

Resetting the Management Module

The **MM Reset** button found on each management module reboots its management module. If the management module is active and redundancy is enabled, switchover occurs. The standby management module is notified immediately. It then takes over and becomes the active management module. If the **MM Reset** button is pressed on the standby management module, that module reboots but no other switch operations are affected. The active management module remains in control.

If redundancy is disabled, the active management module reboots and remains in control, as long as it passes selftest.

Caution

ProCurve does not recommend using the MM Reset button to trigger a switchover. Files being copied over at the time of the reset will be aborted.

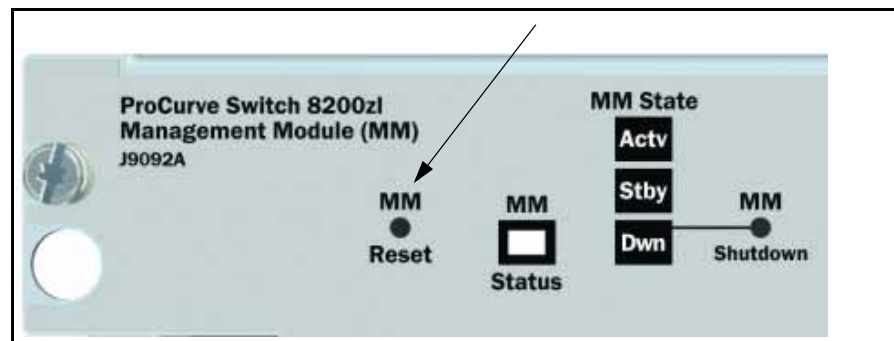


Figure 15-8. The MM Reset Button on the 8200zl Management Module

Hotswapping Management Modules

Hotswapping Out the Active Management Module

You can hotswap out the active management module and have switch operations taken over by the standby management module by following the correct shutdown procedure on the active module using the **MM Shutdown** button. When the **MM Shutdown** button is pressed, any file synchronization in progress completes before the shutdown begins, and then a graceful shutdown of that management module occurs.

1. On the management module to be hotswapped out, press the **MM Shutdown** button. It is located between the Module Operation and Component Status LEDs. See Figure 15-9.

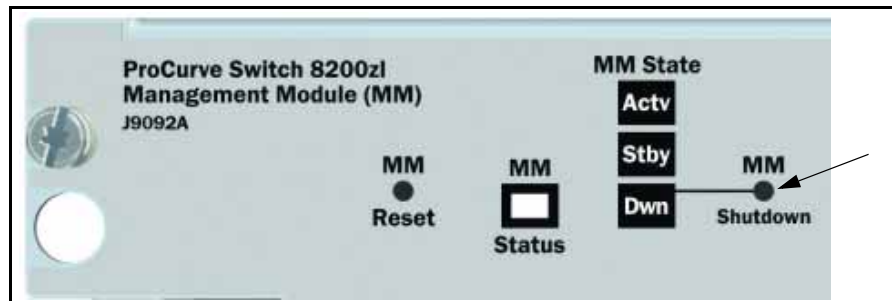


Figure 15-9. The MM Shutdown Button

2. The **Dwn** LED to the right of the MM Shutdown button will begin flashing green. File synchronization will complete before shutdown occurs.
3. The standby module takes control and the switchover occurs. It is now the active management module.
4. The **Dwn** LED on the management module being hotswapped out turns green and all other LEDs go out when it is OK to remove the module.
5. The module being hotswapped out goes into offline mode. In the “offline” mode, the module cannot take over when the active module fails over.

When the Standby Module is not Available

If you have disabled redundancy with the **no redundancy management-module** command, or the standby module failed selftest, the **Down** LED will not turn green to indicate it is OK to hotswap out the active management module.

Note

If you remove the active management module without pressing the **MM Shutdown** button, any files that may have been in the process of synchronizing will not finish synchronizing to the standby module and all file transfer is aborted.

Hotswapping In a Management Module

If another management module is hotswapped in while there is an active management module booted up, the newly hotswapped management module becomes the standby module. It partially boots up and heartbeats are sent back and forth with the active management module. No negotiating is needed as to which module will become the active management module as there is already a functioning active management module. However, these conditions must be met to determine if the hotswapped module can become a standby management module:

- The hotswapped module must pass selftest
- Redundancy is not administratively disabled (using the **no redundancy management-module** command). If the active management module's config file has redundancy administratively disabled, the hotswapped management module goes into "offline" mode.

Software Version Mismatch Between Active and Hotswapped Module

Sometimes the software version in the hotswapped module may not match the software version in the active module. In these cases the following occurs:

1. The active module sends the primary and secondary images in flash to the hotswapped module.
2. The module that was hotswapped in then reboots if necessary to primary or secondary flash, whichever matches (if it doesn't match already).
3. After the hotswapped management module finishes booting, it is sent the config and other critical files from the active management module.
4. The hotswapped management module goes into standby mode and is ready to take over in case of a switchover.

Downloading a New Software Version

File Synchronization after Downloading

After downloading a new software version to either the primary or secondary flash of the active management module, the software version is immediately copied to the corresponding flash (primary or secondary) of the standby module unless the standby module failed selftest or redundancy was disabled with the **no redundancy management-module** command.

The configuration files, including which configuration file to use for that flash image, are synchronized. For example, if the active management module is using config1, the standby module will also be synchronized to use config1.

Table 15-1. Example of Upgrading Software Version K.12.03 to Version K.12.04

	Newer Code to Secondary Flash		New Code to Primary Flash	
	Active MM	Standby MM	Active MM	Standby MM
Software version downloaded to Primary flash image	K.12.03	K.12.03	K.12.04	K.12.04
Software version downloaded to Secondary flash image	K.12.04	K.12.04	K.12.03	K.12.03

Note

See “Setting the Default Flash for Boot” on page 15-31 for information about testing new software versions.

After installing the new software to the active management module, wait a few minutes, and then verify that the standby module has been synchronized with the new software as well (use the **show flash** command). If the default flash for boot has been set correctly, you can start the standby management module on the new software by executing the **boot standby** command. This does not interrupt current switch operations yet. After the standby management module has rebooted and is ready for takeover in standby mode

(you can verify this using the **show redundancy** command), you can now switch over to the management module running the newer software with this command:

```
ProCurve# redundancy switchover
```

This causes a switchover to the management module that received the new software version, which becomes the active management module. This method incurs the least amount of network downtime for booting. If downtime is not an issue, use the **boot system** command. Both management modules will then be running the new software version.

Potential Software Version Mismatches After Downloading

When a new software version is downloaded to the active management module, it is immediately copied to the corresponding flash (primary or secondary) in the standby management module unless redundancy has been disabled. If the standby management module is rebooted, it will be running a different software version than the active management module. You can direct the standby module to boot from the non-corresponding flash image that has a different software version during the actual reboot process of the standby module when the prompt to select the Boot Profile appears.

```
Standby Console# show flash
Image           Size(Bytes)    Date    Version    Build #
-----
Primary Image   : 7493854    03/21/07 K.12.XX    1617
Secondary Image : 7463821    03/05/07 K.12.XX     351
Boot Rom Version: K.12.03
Default Boot    : Primary

Boot Profiles:
0. Monitor ROM Console
1. Primary Software Image
2. Secondary Software Image

Select profile(primary): 2
Booting Secondary Software Image
```

The diagram shows a terminal window with a table of flash images and a list of boot profiles. Two callout boxes with arrows point to specific parts of the output. The first callout points to the 'Boot Profiles:' section and contains the text: 'You can select which flash to boot from at this point in the boot process.' The second callout points to the '2' in the 'Select profile(primary): 2' line and contains the text: 'Indicates the default boot choice'.

Figure 15-10. Booting the Standby Management Module to Secondary Flash

Caution

If you have booted one module out of primary flash and one module out of secondary flash, and the secondary flash is running a prior software version because the latest version was never copied over from the primary flash, you will have a software version mismatch. The configuration file may not work with that software version. See “Software Version Mismatch Between Active and Hotswapped Module” on page 15-16 for more information.

Additionally, if a switchover occurs, or if you reboot to make the standby module become the active module, any configuration file changes made may not work on the active module if it has a different software version from the standby module.

When you enter the **show redundancy** command and a software version mismatch exists, a warning message is displayed, as shown at the bottom of Figure 15-11.

Redundancy (Switch 8212zl)
Downloading a New Software Version

```
ProCurve(config)# show version
Management Module 1: Active
Image stamp:    /sw/code/build/btm(t2g)
                Mar 15 2007 12:28:32
                K.12.30
                64
Boot Image:     Primary

Management Module 2: Standby
Image stamp:    /sw/code/build/btm(t2g)
                Mar 21 2007 14:24:38
                K.12.30
                789
Boot Image:     Secondary

ProCurve(config)# show redundancy

Settings
-----
Mgmt Redundancy : Enabled

Statistics
-----
Failovers       : 0
Last Failover   :

Slot Module Description                               Status   SW Version  Boot Image
-----
1   ProCurve J9092A Management Module 8200z1  Active   K.12.30     Primary
2   ProCurve J9092A Management Module 8200z1  Standby  K.12.30     Primary

1   ProCurve J9093A F2 Fabric Module 8200z1   Enabled
2   ProCurve J9093A F2 Fabric Module 8200z1   Enabled

Warning: Standby module is running a different software version and may be using
a different configuration file. Configuration changes on active management
module may not take effect on a failover.
```

Mismatch exists

Figure 15-11. Example of a Software Version Mismatch Between the Active and Standby Modules

Downloading a Software Version Serially if the Management Module is Corrupted

If the software version on a management module becomes corrupted, you may need to do a serial download to restore the affected module. The non-corrupted management module becomes the active module. You can then use the serial port on the corrupted management module to download a new software version. When the corrupted module is rebooted, the software version in the corrupted module is immediately overwritten by the software version in the active management module. Both management modules should now be operating on the same software version.

Turning Off Redundant Management

Disabling Redundancy with Two Modules Present

In some cases, for troubleshooting a suspect management module you may want to operate the switch with redundant management disabled by entering this command:

```
ProCurve(config)# no redundancy management-module
```

After executing this command, the second management module will not boot into standby mode; it is off line and no longer receives configuration file changes from the active module. The active management module updates its config file with the information that redundancy is disabled.

Note

Even if redundancy has been disabled, the specified management module will become the active management module at the next system boot if you use the **redundancy active-management** command. You are warned that you may not be using current configurations. See “Setting the Active Management Module for Next Boot” on page 15-9.

The second management module is enabled as the active management module in the event of a hardware failure of the first management module.

Figure 15-12 shows that redundant management was disabled.

```
ProCurve(config)# no redundancy management-module
The other management module will no longer be used for system
redundancy except in the case of a hardware failure of the active
management module. Are you sure [y/n]? y

ProCurve(config)# show redundancy

Settings
-----
  Mgmt Redundancy : disabled

Statistics
-----
  Failovers       : 0
  Last Failover  :

Slot Module Description                               Status  SW Version  Boot Image
-----
1   ProCurve J9092A Management Module 8200z1  Offline  K.12.XX    Primary
2   ProCurve J9092A Management Module 8200z1  Active   K.12.XX    Primary

1   ProCurve J9093A F2 Fabric Module 8200z1  Enabled
2   ProCurve J9093A F2 Fabric Module 8200z1  Enabled
```

Figure 15-12. Results of Disabling Redundancy

Disabling Redundancy With Only One Module Present

If you disable redundancy when there is only one management module in the switch, and then you insert a second management module, the second module will never go into standby mode. You must re-enable redundant management using this command:

```
ProCurve(config)# redundancy management-module
```

The currently active module remains active on boot (assuming no selftest failure) unless you make the newly inserted management module active using this command:

```
ProCurve(config)# redundancy active-management  
standby
```

The standby management module becomes the active management module.

Displaying Management Information

Active Management Module Commands

Show Module

The **show modules** command displays information about all the modules in the switch.

```
ProCurve(config)# show modules  
  
Status and Counters - Module Information  
  
Chassis: 8212zl J9091A Serial Number: LP711BX00Z  
  
Slot  Module Description                               Serial Number  Status  
----  -  
1      ProCurve J9092A Management Module 8200zl 111111111111  Active  
2      ProCurve J9092A Management Module 8200zl 222222222222  Standby  
  
1      ProCurve J9093A F2 Fabric Module 8200zl 1234SSN      Enabled  
2      ProCurve J9093A F2 Fabric Module 8200zl 5678SSN      Disabled  
  
A      ProCurve J8708A 4p 10G CX4 z1 Module 333333333333  Up  
B      ProCurve J8702A 24p Gig-T z1 Module 444444444444  Up  
C      ProCurve J8702A 24p Gig-T z1 Module 555555555555  Up  
D      ProCurve J8702A 24p Gig-T z1 Module SG710AT0ZZ    Up
```

Figure 15-13. Example of Show Modules Command on an 8200zl Series Switch

Show Redundancy

The **show redundancy** command displays information about the management and fabric modules. It displays the flash image last booted from, even if the **boot set-default** command has been set to change the flash booted from on the next boot.

```
ProCurve(config)# show redundancy

Settings
-----
Mgmt Redundancy : enabled

Statistics
-----
Failovers      : 0
Last Failover  :

Slot Module Description                               Status  SW Version  Boot Image
-----
1   ProCurve J9092A Management Module 8200z1  Standby  K.12.XX    Primary
2   ProCurve J9092A Management Module 8200z1  Active   K.12.XX    Secondary

1   ProCurve J9093A F2 Fabric Module 8200z1  Enabled
2   ProCurve J9093A F2 Fabric Module 8200z1  Enabled
```

The active management module was last booted from secondary flash. The standby management module was last booted from primary flash.

Figure 15-14. Example of show redundancy Command

Show Flash

The **show flash** command displays which software version is in each flash image. The Default Boot field displays which flash image will be used for the next boot.

```
ProCurve(config)# show flash
Image           Size(Bytes)  Date   Version  Build #
-----
Primary Image   : 7463821  03/05/07 K.12.XX  351
Secondary Image : 7463821  03/05/07 K.12.XX  351
Boot Rom Version: K.12.01
Default Boot    : Primary
```

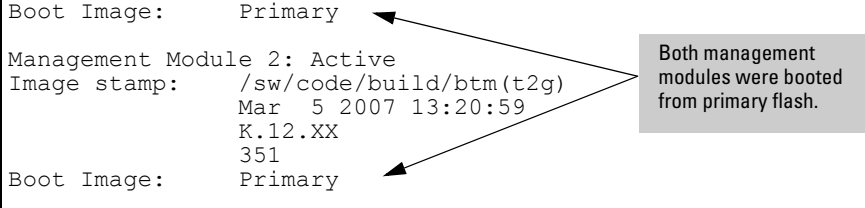
Will boot from primary flash on the next boot.

Figure 15-15. Example of Show Flash Command

Show Version

The **show version** command displays system software image information for both management modules as well as which module is the active management module and which is the standby management module. The Boot Image field displays which flash image last booted from, even if the **boot set-default** command has been set to change the flash booted from on the next boot. The output of the **show version** command when redundancy is enabled is shown in Figure 15-16.

```
ProCurve(config)# show version
Management Module 1: Standby
Image stamp:      /sw/code/build/btm(t2g)
                  Mar 5 2007 13:20:59
                  K.12.XX
                  351
Boot Image:      Primary
Management Module 2: Active
Image stamp:      /sw/code/build/btm(t2g)
                  Mar 5 2007 13:20:59
                  K.12.XX
                  351
Boot Image:      Primary
```



Both management modules were booted from primary flash.

Figure 15-16. Example of Show Version Command when Redundancy is Enabled

When redundancy is disabled, the output of the **show version** command changes, as shown in Figure 15-17.

```
ProCurve(config)# show version
Management Module 1: Redundancy and Synchronization has been disabled:
                    enable with the 'redundancy' command.

Management Module 2: Active
Image stamp:      /sw/code/build/btm(t2g)
                  Mar 5 2007 13:20:59
                  K.12.XX
                  351
Boot Image:      Primary
```

Figure 15-17. Example of show version Command when Redundancy is Disabled

Show Log

The **show log** command displays the status of the switch and its management modules. See “Logging Messages” on page 15-41. To show log messages in reverse chronological order (most recent messages displayed first), enter **show log -r**.

```
ProCurve Switch 8200zl(config)# show log
  Keys:   W=Warning   I=Information
         M=Major     D=Debug
----- Event Log listing: Events Since Boot -----
M 01/26/14 17:34:07 sys: 'System reboot due to Power Failure'
I 01/26/14 17:34:07 00061 system: -----
--
I 01/26/14 17:34:07 00062 system: Mgmt Module 2 went down without saving crash
  information
I 01/26/14 17:36:14 00264 system: Mgmt Module 1 Failed Selftest
I 01/26/14 17:36:19 00068 chassis: Fabric 1 Inserted
I 01/26/14 17:36:19 00068 chassis: Fabric 2 Inserted
I 01/26/14 17:36:19 00068 chassis: Slot D Inserted
I 01/26/14 17:36:19 00690 udpf: DHCP relay agent feature enabled
I 01/26/14 17:36:19 00400 stack: Stack Protocol disabled
I 01/26/14 17:36:19 00128 tftp: Enable succeeded
I 01/26/14 17:36:19 00417 cdp: CDP enabled
I 01/26/14 17:36:19 00688 lldp: LLDP - enabled
I 01/26/14 17:36:19 00066 system: Mgmt Module 2 Booted
I 01/26/14 17:36:19 00260 system: Mgmt Module 2 Active
I 01/26/14 17:36:19 00066 system: Mgmt Module 1 Booted
I 01/26/14 17:36:19 00261 system: Mgmt Module 1 in Standby Mode
```

Figure 15-18. An Example of the Show Log Command Output

Standby Management Module Commands

The standby management module, by design, has very little console capability. You can use three commands—**show flash**, **show version**, and **show redundancy**. The **show redundancy** command displays when a management module is in standby mode.

Show Redundancy

Use the **show redundancy** command to display redundancy status on the standby module, as shown in Figure 15-19. It displays the flash image last booted from, even if the **boot set-default** command has been set to change the flash booted from on the next boot.

```
Standby Console> show redundancy

Settings
-----
Mgmt Redundancy : Enabled

Statistics
-----
Failovers      : 1
Last Failover  : Mon Sep 26 09:50:40 2005

Slot Module Description                               Status  SW Version  Boot Image
-----
1   ProCurve J9092A Management Module 8200z1  Active   K.12.XX     Secondary
2   ProCurve J9092A Management Module 8200z1  Standby  K.12.XX     Primary

1   ProCurve J9093A F1 Fabric Module 8200z1  Enabled
2   ProCurve J9093A F2 Fabric Module 8200z1  Enabled
```

The active management module was last booted from secondary flash. The standby management module was last booted from primary flash.

Figure 15-19. Example of Show Redundancy Command for Standby Module

Show Flash

You can display the flash information on the standby module, as shown in Figure 15-20. The Default Boot field displays which flash image will be used for the next boot.

```
Standby Console> show flash
Image           Size(Bytes)  Date    Version  Build #
-----
Primary Image   : 7493854  03/21/07 K.12.XX  1617
Secondary Image : 7463821  03/05/07 K.12.XX  351

Boot Rom Version: K.12.03
Default Boot     : Primary
```

Will boot from primary flash on the next boot.

Figure 15-20. Example of Show Flash Command for Standby Module

Show Version

You can display the version information on the standby module, as shown in Figure 15-21. The Boot Image field displays which flash image was last booted from, even if the **boot set-default** command has been set to change the flash

booted from on the next boot. Unlike executing the **show version** command on an active management module, this only shows the running version of software on the standby management module.

```
Standby Console> show version
Image stamp:      /sw/code/build/btm(t2g)
                  Mar 21 2007 15:03:31
                  K.12.XX
                  1617
Boot Image:      Primary ← Was booted from
                                primary flash.
```

Figure 15-21. Example of Show Version Command for Standby Module

Existing CLI Commands Affected by Redundant Management

Several existing commands have changes related to redundant management.

Boot Command

In redundant management systems, the **boot** or **boot active** command causes a switchover to the standby management module as long as the standby module is in standby mode. This message displays:

```
This management module will now reboot and will become
the standby module! You will need to use the other
management module's console interface. Do you want to
continue [y/n]?
```

If you select “y”, switchover is initiated by the standby management module, which becomes the active management module after boot completes.

If the standby module is not in standby mode (for example, it is in failed mode or offline mode), switchover to the standby module does not occur. The system is rebooted. This message displays:

```
The other management module is not in standby mode and
this command will not cause a switchover, but will
reboot the system, do you want to continue [y/n]?
```

If the other management module is not present in the switch, the system simply reboots.

The **boot** command has these options.

Command	Action
Boot <cr>	Reboots the active management module from the flash image that is specified for the default boot. This can be changed with the boot set-default flash command. You can select which image to boot from during the boot process itself. See Figure 15-22. The switch will switchover to the standby management module. Note: This is changed from always booting from primary flash. You are prompted with a message which will indicate the flash being booted from.

Redundancy (Switch 8212z1)

Existing CLI Commands Affected by Redundant Management

Command	Action
Boot active	Boots the active management module. The switch starts to boot from the default flash image. You can select which image to boot from during the boot process itself. See Figure 15-22. The switch will switchover to the standby management module. If a second management module is not present in the switch, the system is rebooted.
Boot standby	Boots the standby management module. The switch does not switchover. If the standby module is not present, this message displays: "The other management module is not present."
boot system [flash <primary secondary>]	Boots both the active and standby management modules. You can specify the flash image to boot from.
boot set-default flash <primary secondary>	Sets the default flash for the next boot to primary or secondary. You will see this message: "This command changes the location of the default boot. This command will change the default flash image to boot from <flash chosen>. Hereafter, 'reload' and 'boot' commands will boot from <flash chosen>. Do you want to continue [y/n]?"

You can select a boot profile during the reboot process, as shown in Figure 15-22. If you make no selection, the boot defaults to the imaged displayed as the default choice (shown in parentheses).

```
Boot Profiles:
0. Monitor ROM Console
1. Primary Software Image
2. Secondary Software Image

Select profile(primary): 2

Booting Secondary Software Image...
```

Figure 15-22. The Management Module Rebooting, Showing Boot Profiles to Select

An example of the **boot** command with the default flash set to secondary is shown in Figure 15-23.

```
ProCurve(config)# boot set-default flash secondary
This command changes the location of the default boot. This command will
change the default flash image to boot from secondary. Hereafter,
'reload' and 'boot' commands will boot from secondary. Do you want to
continue [y/n]? y

ProCurve(config)# show flash
Image                Size(Bytes)    Date    Version    Build #
-----
Primary Image       : 7476770    03/15/07 K.12.XX    64
Secondary Image    : 7476770    03/15/07 K.12.XX    64
Boot Rom Version: K.12.02
Default Boot       : Secondary

ProCurve(config)# boot
This management module will now reboot from secondary and will become
the standby module! You will need to use the other management module's
console interface. Do you want to continue [y/n]?
```

Figure 15-23. Example Showing boot Command with Default Flash set to Secondary

Caution

For a given reboot, the switch automatically reboots from the startup-config file assigned to the flash (primary or secondary) being used for the current reboot. The **startup-default** command can be used to set a boot configuration policy. This means that both the flash image and one of the three configuration files can be specified as the default boot policy. For more information on multiple configuration files and how they are used, see “*Multiple Configuration Files*” in the “*Switch Memory and Configuration*” chapter in this guide.

Setting the Default Flash for Boot

You can set which flash image to boot from as the default image on boot by using this command:

Syntax: boot set-default flash <primary | secondary>

Sets the flash image to boot from on the next boot.

primary: Boots the primary flash image.

secondary: Boots the secondary flash image.

Figure 15-24 shows an example of the output when the command is used to set the boot default to secondary flash.

```
ProCurve(config)# show flash
Image           Size(Bytes)   Date   Version   Build #
-----
Primary Image   : 7463821   03/05/07 K.12.XX   351
Secondary Image : 7463821   03/05/07 K.12.XX   351
Boot Rom Version: K.12.01
Default Boot    : Primary

ProCurve(config)# boot set-default flash secondary
This command changes the location of the default boot. This
command will change the default flash image to boot from
secondary. Hereafter, 'reload' and 'boot' commands will boot
from secondary. Do you want to continue [y/n]? y

ProCurve(config)# show flash
Image           Size(Bytes)   Date   Version   Build #
-----
Primary Image   : 7463821   03/05/07 K.12.XX   351
Secondary Image : 7463821   03/05/07 K.12.XX   351
Boot Rom Version: K.12.01
Default Boot    : Secondary
```

Figure 15-24. Example of boot set-default Command Defaulting to Secondary Flash

Reload Command

The **reload** command boots the active management module from the current default flash (You can change the default flash with the **boot set-default** command. See “Setting the Default Flash for Boot” on page 15-31). Switchover occurs if redundancy is enabled and the standby management module is in standby mode. If redundancy is disabled or the standby management module is not present, the **reload** command boots the system.

Note

The reload command is a “warm” reboot; it skips the Power on Self Test routine.

Command	Action
reload <cr>	Boots (warm reboot) the active management module. Switchover to the standby management module occurs if redundancy is enabled. If redundancy is disabled or there is no standby management module, the reload command boots the system. Note: If the running config file is different from the stored config file, you will be prompted to save the config file. The reload at/after versions of this command do not display a prompt to save configuration file changes; the changes are lost on the scheduled reload.

```
ProCurve(config)# reload
This command will cause a switchover to the other management module
which may not be running the same software image and configurations.
Do you want to continue [y/n]? y

(Boots...)

ProCurve(config)# show redundancy

  Settings
  -----
  Mgmt Redundancy : Enabled

  Statistics
  -----
  Failovers       : 1
  Last Failover  : Mon April 30 09:10:11 2007

Slot Module Description                Status  SW Version  Boot Image
-----
1   ProCurve J9092A Management Module 8200z1 Active   K.12.XX    Primary
2   ProCurve J9092A Management Module 8200z1 Standby  K.12.XX    Primary
```

Figure 15-25. Example of Reload Command with Redundancy Enabled

Additional Commands Affected by Redundant Management

The other existing commands operate with redundant management as shown below.

Command	Action
auto-tftp	If a new image is downloaded using auto-tftp , the active management module downloads the new software version to both the active and standby modules. Rebooting after the auto-tftp completes reboots the entire system.
banner	The banner will not be seen on the standby module, only the active module.
chassislocate	If the management module performs a switchover, the LED does not remain lit.
clear	The clear crypto command causes public keys to be deleted from both modules when the second module is in standby mode.
console	Console settings, such as mode, flow-control, and baud-rate, are the same on both management modules. There cannot be individual settings for each management module.
copy	Files are automatically sync'd from the active management module to the standby management module. When no parameter is specified with the copy crash-data or copy crash-log command, files from all modules (management and interface) are concatenated. See "Crash Files" on page 15-42. Note: If redundancy is disabled or the standby module failed selftest, the copy command affects only the active management module.
crypto	Authentication files for ssh or the https server are copied to the standby management module. The clear crypto command deletes the public keys from both modules when the second module is in standby mode.
erase flash	Erases the software version on the active and standby modules. If redundancy has been disabled, or the standby module has not passed selftest, the flash is not erased on the standby module.
erase config	Erases the config file on the active and standby modules. If redundancy has been disabled, or the standby module has not passed selftest, the config file is not erased on the standby module.
erase startup-config	Affects both modules if the second module is in standby mode. If redundancy has been disabled, or the standby module has not passed selftest, the startup-config file is not erased on the standby module.

Command	Action
fastboot	When fastboot is enabled, this information is saved to the standby management module when the config files are sync'd. The fastboot value is used during the next boot on both modules.
front-panel-security factory-reset password-clear password-recovery	This command and its options only affects the active management module. See the section on "Front-Panel Button Functions" in the <i>Access Security Guide</i> for more information about resetting the switch.
kill	Does not affect the console on the standby module.
log	Log messages from a formerly active management module are available on the current active management module after a switchover.
password (set or clear)	Affects only the active management module until a switchover occurs, at which time it affects the new active module.
startup-default	Affects both modules. The config file is immediately sent to the standby module and also becomes the default on that module when the next boot occurs.
update	Only affects the active module. The standby may become the active module when the updated active module is booted.
write	A write memory updates the config file in flash on the active module. The file is then sync'd to the standby module.

Using the Web Browser for Redundant Management

The web browser interface can be used to display information about the active and standby management modules. To learn more about using the web browser interface on your switch, see the chapter “Using the ProCurve Web Browser Interface” in this guide.

Online Help is available for the web browser interface. You can use it by clicking on the question mark button in the upper right corner of any of the web browser interface screens.

Identity Page

The Identity page displays information about the version of software running on both the active and the standby management module.

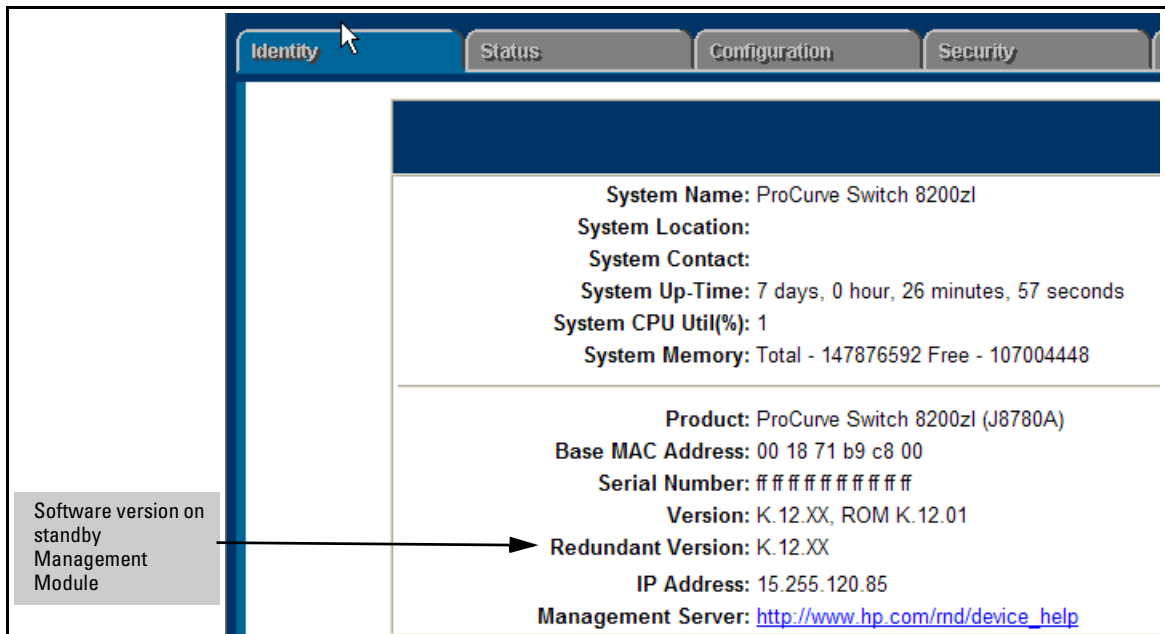


Figure 15-26. Identity Page showing Software Version on both Active and Redundant Management Modules

Overview Page

To view status information about the management modules select the **Status** tab, and then the **Overview** button. The following information is shown:

- Which module is the active module and which is the standby module
- Version of software running on each management module
- The SystemUp Time since the last reboot.

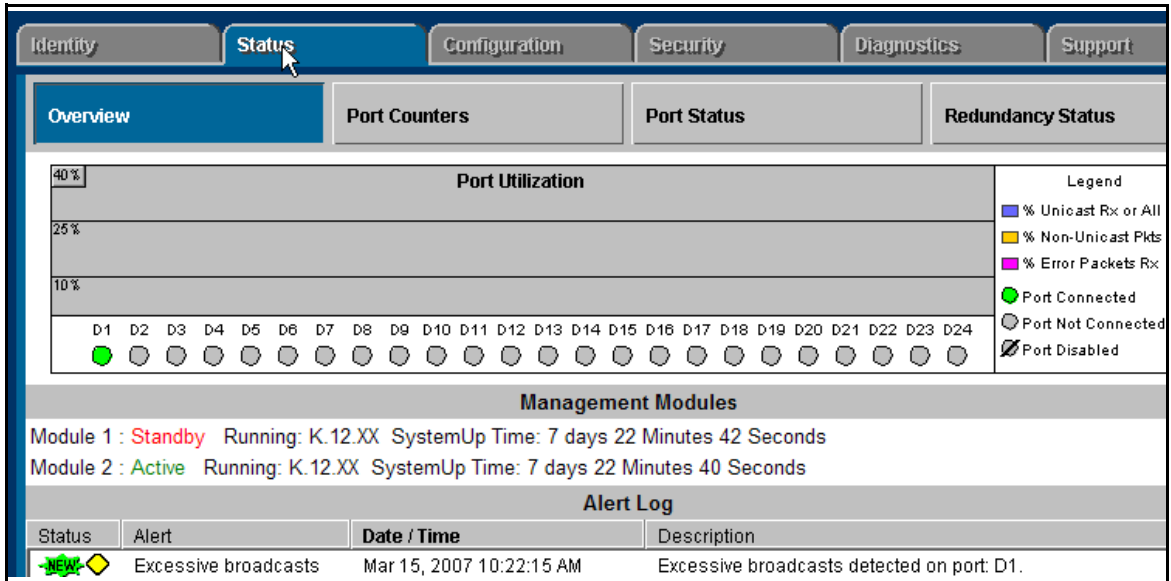


Figure 15-27. Overview Page Showing the SystemUp Time for Both Management Modules

Redundancy Status Page

The **Redundancy Status** tab is visible only if the alternate management module (non-active module) is in standby mode. Select the **Status** tab and then the **Redundancy Status** button. The **Redundancy Status** page displays information about the active and standby management modules and the two fabric modules.

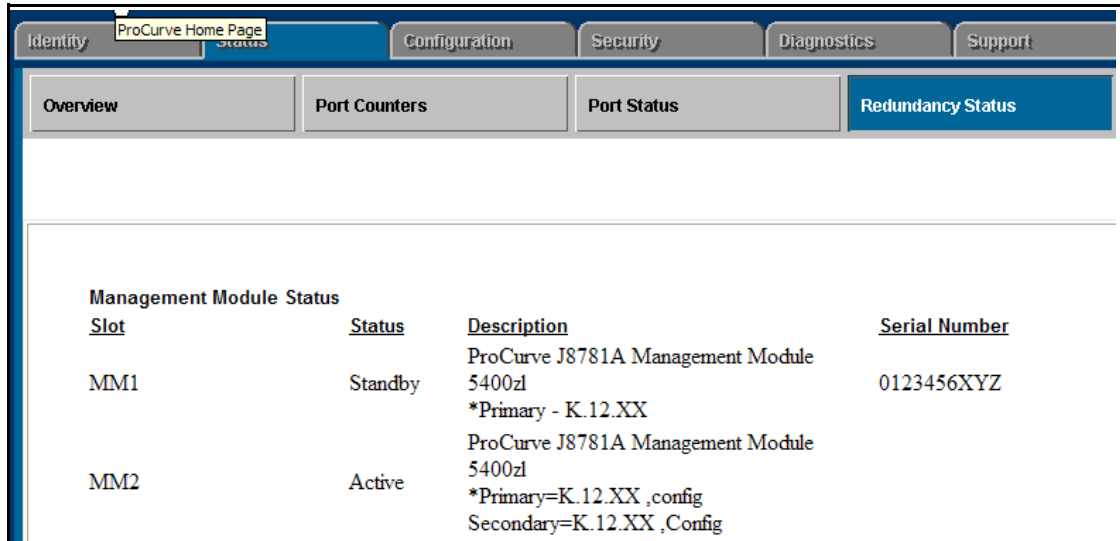


Figure 15-28.Redundancy Status Page Showing Information about the Active and Standby Modules

Device View Page

The **Device View** page displays a graphical representation of the switch. Select the **Configuration** tab and then the **Device View** button. The information displayed includes:

- Fabric modules
- Interface modules
- System Support module
- LEDs and the status of the switch and management modules

The LEDs indicate in green which management module is active and which management module is in standby mode.

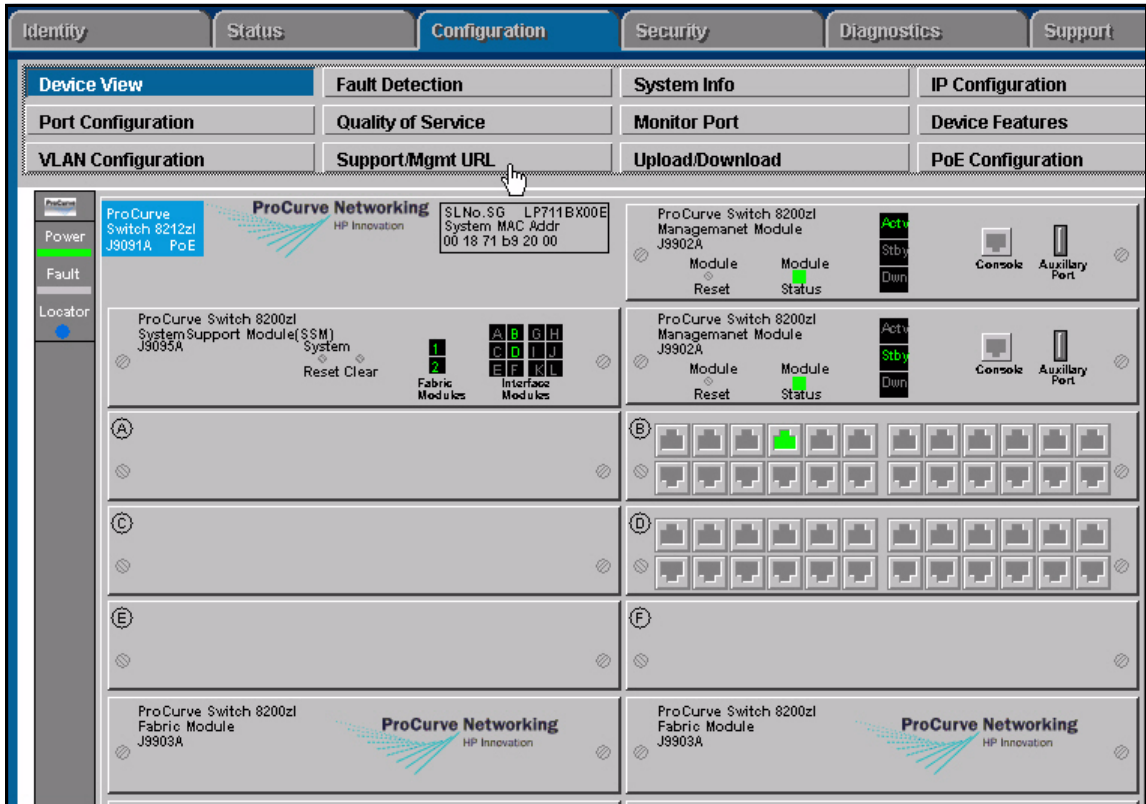


Figure 15-29. Device View Showing Two Management Modules

Management Module LED Behavior

Active (Actv) LED Behavior

The Actv (Active) LED shows the LED behavior for various states on the active and standby management modules. See Table 15-2 for the available states and what they indicate. Refer to the *Installation and Getting Started Guide* for your switch for more information about LEDs.

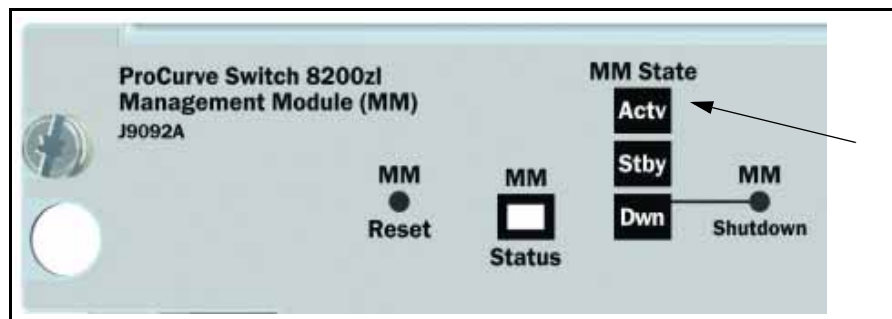


Figure 15-30. The Actv LED on the Management Module

Table 15-2. Actv (Active) LED Behavior for Management Modules

Active Module	Standby Module	Meaning
Solid green	Not lit	Correct Active/Standby mode
Solid green	fast orange flashing	Failed standby module
Not lit	Flashing green	Standby module is starting to take over
Not lit	Solid green	Switchover is complete

Standby Led Behavior

To be completed.

Logging Messages

Log File

The log file displays messages about the activities and status of the management modules. Enter this command to display the messages:

Syntax: show logging

Displays log events.

For more information on command options available with the **show logging** command, see “CLI: Displaying the Event Log” in the “Troubleshooting” chapter of this guide.

An example of the log file listing is shown in Figure 15-31.

```
ProCurve(config)# show logging
Keys:   W=Warning   I=Information
        M=Major     D=Debug
----  Event Log listing: Events Since Boot  ----
M 01/26/14 17:34:07 sys: 'System reboot due to Power Failure'
I 01/26/14 17:34:07 00061 system: -----
I 01/26/14 17:34:07 00062 system: Mgmt Module 2 went down without saving crash
                               information
I 01/26/14 17:36:14 00264 system: Mgmt Module 1 Failed Selftest
I 01/26/14 17:36:19 00068 chassis: Fabric 1 Inserted
I 01/26/14 17:36:19 00068 chassis: Fabric 2 Inserted
I 01/26/14 17:36:19 00068 chassis: Slot D Inserted
I 01/26/14 17:36:19 00690 udpf: DHCP relay agent feature enabled
I 01/26/14 17:36:19 00400 stack: Stack Protocol disabled
I 01/26/14 17:36:19 00128 tftp: Enable succeeded
I 01/26/14 17:36:19 00417 cdp: CDP enabled
I 01/26/14 17:36:19 00688 lldp: LLDP - enabled
I 01/26/14 17:36:19 00066 system: Mgmt Module 2 Booted
I 01/26/14 17:36:19 00260 system: Mgmt Module 2 Active
I 01/26/14 17:36:19 00066 system: Mgmt Module 1 Booted
I 01/26/14 17:36:19 00261 system: Mgmt Module 1 in Standby Mode
I 01/26/14 17:36:27 00375 chassis: Slot D Downloading
I 01/26/14 17:36:29 00376 chassis: Slot D Download Complete
I 01/26/14 17:36:44 00422 chassis: Slot D Ready
I 01/26/14 17:39:28 00179 mgr: SME CONSOLE Session - MANAGER Mode
I 01/26/14 21:49:10 00261 system: Mgmt Module 1 in Standby Mode
----  Bottom of Log : Events Listed = 21  ----
```

Figure 15-31. Log File Listing

Crash Files

Crash logs for all modules are always available on the active management module. The **copy crash-log** and **copy crash-data** commands can be used to copy the information to a file of your choice.

Syntax: copy crash-log [<slot-id> | mm] tftp <ip-address> <filename>

*Copies both the active and standby management modules' crash logs to a user-specified file. If no parameter is specified, files from **all** modules (management and interface) are concatenated.*

slot-id: *retrieves the crash log from the module in the specified slot.*

mm: *retrieves the crash logs from both management modules and concatenates them.*

Syntax: copy crash-data [<slot-id> | mm] tftp <ip-address> <filename>

*Copies both the active and standby management modules' crash data to a user-specified file. If no parameter is specified, files from **all** modules (management and interface) are concatenated.*

slot-id: *retrieves the crash data from the module in the specified slot.*

mm: *retrieves the crash data from both management modules and concatenates them.*

Displaying Saved Crash Information

You can display the saved crash information for each management module by using this command:

Syntax: show boot-history

Displays the system boot log.

An example of the output is shown in Figure 15-32.

```
ProCurve Switch 8200zl$ show boot-history

Mgmt Module 1 -- Saved Crash Information (most recent first):
=====
Mgmt Module 1 in Active Mode went down: 11/07/05 14:48:36
Operator warm reload from CONSOLE session.

Mgmt Module 1 in Active Mode went down: 11/07/05 11:43:10
Operator cold reboot from CONSOLE session.

Mgmt Module 2 -- Saved Crash Information (most recent first):
=====
  No Saved Crash Information
```

Figure 15-32. An Example of the System Boot Log File

Notes on How the Active Module is Determined

Both management modules run selftest routines to determine which module becomes the active management module and which becomes the standby management module. The module that was last active in the chassis is given precedence and becomes the “active” module. This module will be the one that is booted going forward. If a module fails selftest and is unable to communicate with the other module, it does not take control as the management module. The other management module will take control and become the active module.

If both modules fail selftest, the fault LED flashes and neither module is operational.

Note

You are not allowed to switchover to a management module that is not in standby mode. The module must have passed selftest and be in standby mode.

The entire boot decision process works as follows:

1. If there is only one management module, that is the active management module.
2. If one module is already booted and operational, a newly inserted module or the other management module booting will always become the standby module. The standby module does not become active unless a switchover occurs.
3. If there are two management modules and one fails selftest, the one that passes selftest becomes the active management module.
4. If only one of two modules was ever booted in the chassis, that module is given precedence.
5. The module that was active on the last boot becomes the active management module. This guarantees that the active module has the latest configuration data.
6. If both management modules have previously booted in this chassis and were “active” the last time booted, the module that booted most recently becomes the active management module.
7. If none of the above conditions are applicable, the module in the lowest slot becomes the active management module.

Diagram of Decision Process

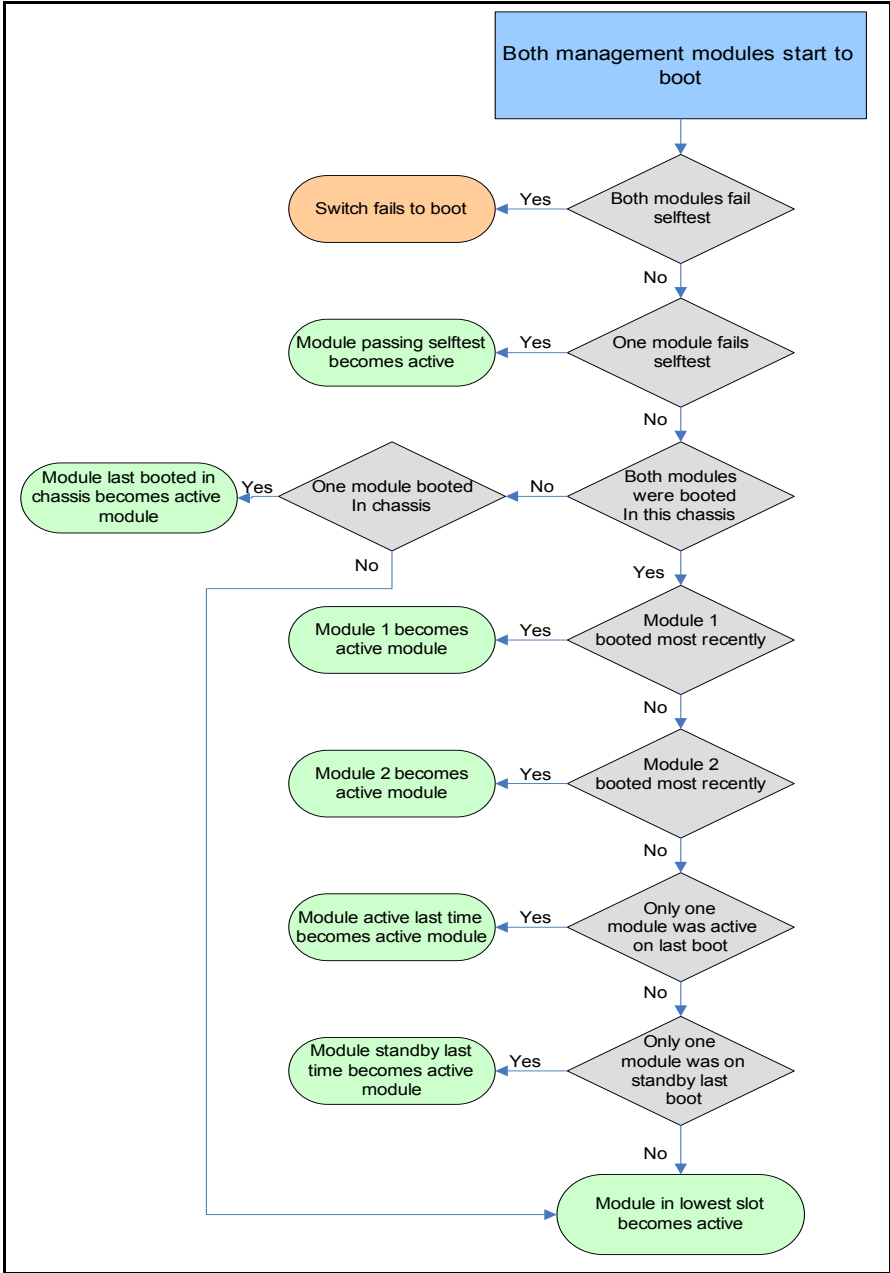


Figure 15-33. Active Module Decision Flow Chart at Boot

Event Log Messages

#	System Message	Severity	Description
1	Mgmt module [1 or 2] went down without saving crash information	info	The specified management module went down without saving the crash information. RMON_BOOT_NO_CRASH_RECORD
2	Mgmt module [1 or 2] went down	info	The specified management module was rebooted. RMON_BOOT_CRASH_RECORD0
4	Boot-up selftest failed	fatal	The boot up selftest of the management module failed. This message also appears for an interface module that fails selftest. RMON_BOOT_SELFTEST_FAILURE
5	System booted or Mgmt Module [1 or 2] Booted	info	This message appears at the end of the boot process. RMON_BOOT_COMPLETE
8	Mgmt Module [1 or 2] Active	info	The specified management module is the active management module RMON_SYSTEM_MGMT_MOD_ACTIVE
9	Mgmt Module [1 or 2] in Standby Mode	info	The specified management module is in standby mode. RMON_SYSTEM_MGMT_MOD_STANDBY
11	Mgmt Module [1 or 2] Offline (redundancy disabled)	info	The no redundancy management-module command was issued and the specified management module went offline. RMON_SYSTEM_MGMT_OFFLINE
12	Mgmt Module [1 or 2] Failed Selftest	warn	The specified management module failed selftest and will not become an active or standby module. RMON_SYSTEM_MGMT_FAILED
13	Lost Communication with Mgmt Module [1 or 2]	warn	A management module failed to receive heartbeats from the other management module. RMON_SYSTEM_MGMT_LOST_COMM
14	Resetting Mgmt Module [1 or 2]	info	The specified management module is being reset. This can occur if the MM Reset button is pressed. RMON_SYSTEM_MGMT_RESET

#	System Message	Severity	Description
15	Mgmt Module [1 or 2] - Running different version of SW	info	The specified management module is running a different version of software from the other management module. RMON_SYSTEM_MGMT_OS_DIFF
16	Mgmt Module [1 or 2] - Failover occurred	warn	Switchover occurred. The specified management module is the newly active management module RMON_SYSTEM_MGMT_FAILOVER
17	Mgmt Module [1 or 2] - User initiated switchover occurred	info	The user has initiated switchover using the redundancy switchover command so that the other management module can become the active management module. RMON_SYSTEM_MGMT_SWITCHOVER
18	Mgmt Module [1 or 2] - Offline (incompatible SW versions)	warn	The software version in the specified management module is not compatible with the other module and it has gone offline. RMON_SYSTEM_MGMT_INCOMPAT_OS
19	Other management module is not in standby, shutdown request ignored	warn	A shutdown request is ignored because the standby module is not in standby mode. A management module must be in active or standby mode to be shut down. The module goes into a "down" state which allows you to safely swap it out. RMON_SYSTEM_MGMT_HSBUTTONERR
20	Mgmt Module [1 or 2] Offline (shutdown)	info	The specified management module is offline because of a shutdown. RMON_SYSTEM_MGMT_SHUTDOWN
22	Syncing [primary secondary] OS to standby	info	This message is logged when the OS begins synchronizing to the standby module. RMON_SYSTEM_OS_SYNC
23	Standby boot image updated, rebooting standby	info	This message is logged when the standby's management module boot image is overwritten, requiring a reboot. RMON_SYSTEM_STANDBY_REBOOT

Redundancy (Switch 8212zl)

Event Log Messages

#	System Message	Severity	Description
24	Initial active to standby sync started	info	Indicates the beginning of the initial synchronization of the active management module's flash image to the standby management module. RMON_SYSTEM_SYNC_BEGIN
25	Initial active to standby sync complete	info	Indicates the end of the initial synchronization of the active management module's flash image to the standby management module. RMON_SYSTEM_SYNC_END